Department of Energy
Brookhaven Site Office
P.O. Box 5000
Upton, New York 11973

April 14, 2020

Mr. Brian Jankauskas
New York State Department of
Environmental Conservation
Division of Environmental Remediation
625 Broadway – 12th Floor
Albany, New York 12233

Ms. Sharon Hartzell
Federal Facilities Section
U.S. EPA - Region II
290 Broadway – 18th Floor
New York, New York 10007-1866

Dear Mr. Jankauskas and Ms. Hartzell:

SUBJECT: BROOKHAVEN NATIONAL LABORATORY (BNL) PER- AND POLYFLUORINATED SUBSTANCES (PFAS) PHASE 4 and 5 WORK PLANS – RESPONSE TO COMMENTS

We have reviewed New York State's comments to our Phase 4 and 5 Work Plans for continued characterization of PFAS at BNL. The attached table summarizes our responses.

Please note, due to social distancing requirements, this response is being provided in an electronic format only. Paper versions, if needed, will be available upon request at a future date. If you have any questions please contact Jerry Granzen, of my staff, at (631) 344-4089.

Sincerely,
Robert P. Gordon
Digitally signed by Robert P. Gordon
Date: 2020.04.14 12:29:43 -04'00'
Robert P. Gordon
Site Manager

Attachment:
Response to Comments Table

cc: J. Swartwout, NYSDEC
T. Papura, NYSDEC
D. O'Hehir, NYSDOH
J. Collins, NYSDOH
S. Karpinski, NYSDOH
M. Soucie, NYSDOH
A. Juchatz, SCDHS
A. Rapiejko, SCDHS
G. Granzen, SC-BHSO
W. Dorsch, BSA
R. Howe, BSA
D. Paquette, BSA
J. Remien, BSA

Comment Number	Section	Comment	Response
Letter from Brian Jankauskas (NYSDEC) to Robert Gordon (DOE) Dated March 5, 2020.			
1	Section 3,1, Monitoring Wells	Indicates that samples will be collected from monitoring wells with pumps equipped with Teflon containing bladder and tubing. The Department understands the proposed method but recommends that sampling include additional QA/QC evaluation be performed on the samples. This can be done by collecting a few additional samples from select wells using equipment without Teflon parts and/or collecting equipment samples from the Teflon parts. Additional consideration would be to confirm any unusual values by resampling the monitoring wells using Teflon free equipment.	BNL will evaluate the need to conduct follow-up sampling on select wells that are determined to have unexpected detections of PFAS. BNL has a limited number of Teflon®-free bladder pumps and discharge tubing that can be used for this effort. Furthermore, BNL was recently provided with a Teflon®-free electrical submersible pump for limited product testing. This pump was used to collect samples from several wells that were first sampled with the existing dedicated bladder pumps. The analytical data acquired during Phase 4, and previous testing, will be evaluated to identify PFAS that may be related to the Teflon®-containing sampling equipment.
2	Section 3.1, Sample Analysis and Reporting	Change section number to 3.3. Method 522 is specified for the 1,4-dioxane analysis. This method is typically used for a drinking water sample. Method 8270 SIM is typically used for groundwater water samples. Suggest analyzing the 1,4-dioxane samples using 8270 SIM method.	The section number was corrected. BNL has been using Method 522 for 1,4-dioxane analyses since 2017, primarily for samples collected from permanent monitoring wells. The water from these wells usually has low turbidity levels, and possible matrix effects are not expected to be an issue. BNL will select several wells for comparison testing using the two methods. Furthermore, for the planned Phase 5 effort, where groundwater samples from temporary wells may contain higher turbidity levels, BNL will switch to Method 8270 SIM.
3	Table 5	Equipment blank samples should be included for new equipment to determine if any PFAS are present due to the manufacturing of the equipment.	Most wells are equipped with dedicated sampling equipment. However, equipment blanks will be considered when new sampling equipment is used.

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4	Figure 1	Verify that all monitoring wells are located on the figure as 26 monitoring wells (e.g., 007-05, 54-191, 96-117) from Table 1 are not located on the figure.	Due to late additions to the wells table, some wells were inadvertently left off the map that was distributed. The final report will include a series of maps that will show all wells that were sampled as part of the Phase 4 effort. Please note that BNL has already made adjustment to the list because several wells that are no longer part of the current routine monitoring program were found to have been previously abandoned, or they contained pumps that are inoperable and cannot be removed from small diameter (2-inch) wells. When possible, the wells will be replaced by nearby wells with similar screen depths.
5	General Comment	The Department suggests that a shallow groundwater sample near the system discharge location be collected. This information along with the effluent concentrations may help to evaluate detections of elevated concentrations from a treatment system effluent.	Phase 4 includes available permanent wells that are positioned downgradient of several on-site treatment system recharge areas. These include the RA V recharge basin (wells 076-171, 076-173, and 077-10), OU III recharge basin (well103-02), and the former Western South Boundary recharge basin (well 125-01). At the present time, shallow wells are not available for the off-site treatment system recharge areas. The need to sample the shallow groundwater in these areas will be discussed with the agencies.

Comment Number	Section	Comment	Response
Letter from Brian Jankauskas (NYSDEC) to Robert Gordon (DOE) Dated March 16, 2020.			
1	Section 1, second paragraph, last sentence	This sentence should be revised to reflect that this is a public water supply MCL, not an individual supply standard.	BNL believes that modification of this sentence is not needed.
2	Section 3,1, 3.2, and Table 8	The proposed groundwater analysis method for 1,4-dioxane is EPA method 522sim, which is a drinking water method. Drinking water equipment at a laboratory should not be used for groundwater samples that may have significant concentrations (e.g., located in a source area) or contained elevated turbidity. Suggest groundwater samples for 1,4-dioxane be analyzed via EPA method 8270sim and these sections be revised to reflect this change.	BNL has been using Method 522 for 1,4-dioxane analyses since 2017, primarily for samples collected from permanent monitoring wells. The water from these wells usually has low turbidity levels, and possible matrix effects are not expected to be an issue. Based upon characterization results to date, it is unlikely that the groundwater samples will contain 1,4-dioxane concentrations that are high enough to impact the analytical equipment. During the Phase 4 effort, BNL will select several monitoring wells for comparison testing using the two methods. For the planned Phase 5 effort, where groundwater samples from temporary wells may have higher turbidity levels, BNL will switch to Method 8270 SIM. BNL may select several temporary well monitoring intervals to conduct a comparison of the two methods.
3	Section 4, second bullet	Some samples of the supply well water during drilling operations should be included in the report and evaluated when assessing groundwater results.	The BNL supply wells are currently tested for PFAS on a quarterly basis. The analytical results for the supply wells will be evaluated in the final report. Specifically, review of the PFAS results for BNL potable supply wells 4, 6 and 7 will be useful for the characterization of the current firehouse plume.
4	General comment	Suggest installing permanent monitoring wells at locations where elevated concentrations are detected to permit future sampling.	BNL is planning to install permanent monitoring wells in several phases. First for long-term surveillance of the current firehouse and former

Comment Number	Section	Comment	Response
			firehouse PFAS source areas, and second for long-term surveillance of the downgradient portions of the plumes. Separate work plans will be prepared that that will show the locations for the proposed monitoring wells and to define the monitoring objectives.
5	Tables 1 and 3	Suggest including at least one upgradient well location be sampled for 1,4-dioxane.	BNL agrees with the recommendation.